

***THELOPSIS ISIACA* VAR. *AUSTRALIS*, A NEW PYRENOCARPOUS LICHEN FROM AUSTRALIA**

by

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ABSTRACT

McCarthy, P.M. *Thelopsis isiaca* var. *australis*, a new pyrenocarpous lichen from Australia. *Muelleria* 7(3): 313-315 (1991) — *Thelopsis isiaca* var. *australis* McCarthy is described from west-central Victoria, Australia. It is distinguished from var. *isiaca* by its well-developed areolate thallus, smaller asci, perithecia and thalline verrucae and its occurrence on deeply-shaded siliceous rock. *Thelopsis* Nyl. is reported from the Southern Hemisphere for the first time.

INTRODUCTION

The pyrenocarpous lichen genus *Thelopsis* Nyl. is best known from Europe (Vězda 1968) and the U.S.A. (Harris 1979). Accommodating six species, it is characterised by a *Trentepohlia*-like photobiont, polysporous unitunicate asci, simple persistent paraphyses and simple to few-septate ascospores. This combination sets *Thelopsis* apart from all of the recognised pyrenocarpous families (Harris 1979).

The rarely-collected *T. isiaca* Stizenb. is the only species with 1-septate spores, but, more significantly, it is the only one possessing perithecia that remain entirely immersed in prominent thalline warts. *Thelopsis isiaca* has been found in Egypt (its type locality), Crete, SW Europe and California, U.S.A. (Vězda 1968); it is predominantly corticolous, but is also known to inhabit limestone and other basic rocks. *Thelopsis isiaca* var. *australis*, described here from Victoria, represents the first record of this anomalous genus from the Southern Hemisphere.

TAXONOMY

***Thelopsis isiaca* var. *australis* McCarthy, var. nov.**

Thallus crustaceus, epilithicus, subgriseo-hinnuleus, areolatus, 0.1–0.15(–0.2) mm crassus. *Areolae* irregulares, angulares, laeves, hebetatae, planae vel convexae, saepe rimulosae, 0.2–0.5(–0.6) mm latae. *Cortex* 35–45 μ m crassus, magnopere hyalinus. *Stratum algarum* 50–90 μ m crassum; cellulae ad *Trentepohliam* pertinentes, 10–23 \times 10–16 μ m. *Medulla* 20–40 μ m crassa. *Perithecia* simplicia, in verrucis thallinis omnino immersa, plerumque solitaria. *Verrucae* convexae vel hemisphaericae, (0.38)–0.45(–0.56) mm diametro. *Ostium* leviter depressum, fuscum. *Centrum* globosum, 0.2–0.25(–0.3) mm diametro. *Excipulum* hyalinum, 20–30 μ m crassum. *Paraphyses* 20–30 \times 1.5–2.5 μ m, parce ramosae. *Paraphyses* simplices, multicellulosae, persistentes, 2 μ m latae. *Asci* unitunicati, cylindrici vel fusiformes, 60–120-spori, 130–160 \times 12–20 μ m, apicibus gradatim decrescentibus vel rotundatis vel parce complanatis. *Gelatinum hymenii* kali causticum/J+ sublaezulinus. *Ascospores* incoloratae, 1-septatae, latae vel elongatae-ellipsoideae, aliquando moderate flexae, aliquando cellulis anisomorphis, plerumque in medio constricto, persaepe biguttulatae, (9.1–)12.2(–17.3) \times (4.4–)5.4(–7.1) μ m.

HOLOTYPE: Australia, Victoria, 4 km SSW of Mt Langi Ghiran, 300 m N of Beaufort-Ararat road, alt. 450 m, on dry deeply-shaded granite, P. M. McCarthy 122 (MEL 1052235).

Thallus crustose, epilithic, pale grey-fawn, areolate, 0.1–0.15(–0.2) mm thick. *Areolae* irregular, angular, smooth, matt, plane to convex, frequently

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rimulose, 0.2–0.5(–0.6) mm wide. *Cortex* 30–45 μm deep, mainly hyaline, pigmented only in the uppermost 5–7 μm ; cells become larger, more angular and more thin-walled with depth, 3–6 \times 2–4 μm . *Algal layer* 50–90 μm deep; cells *Trentepohlia*-like, ellipsoid to globose, solitary or in short filaments, 10–23 \times 10–16 μm . *Medulla* 20–40 μm deep; hyphae closely-set, 3–6 μm diam. *Perithecia* simple, entirely immersed in thalline verrucae, usually solitary, occasionally in pairs. *Verrucae* strongly convex to hemispherical, (0.38–)0.45(–0.56) mm diam., becoming somewhat attenuated at the base. *Ostiole* slightly depressed, somewhat darker than the surrounding tissue. *Centrum* globose, 0.2–0.25(–0.3) mm diam. *Excipulum* hyaline, 20–30 μm thick. *Periphyses* 20–30 \times 1.5–2.5 μm , sparingly branched. *Paraphyses* simple, multicellular, persistent, 2 μm wide. *Asci* unitunicate, cylindrical or fusiform, thin-walled, containing 60–120 ascospores, 130–160 \times 12–20 μm ; apex tapering, rounded or somewhat flattened. *Hymenial gelatin* KOH/I+ pale blue. *Ascospores* colourless, 1-septate, broadly to elongate-ellipsoid, sometimes bent or with one cell larger than the other, frequently constricted at the septum, not obviously halonate, almost invariably bi-guttulate, (9.1–)12.2(–17.3) \times (4.4–)5.4(–7.1) μm (40 individuals measured). (Fig. 1)

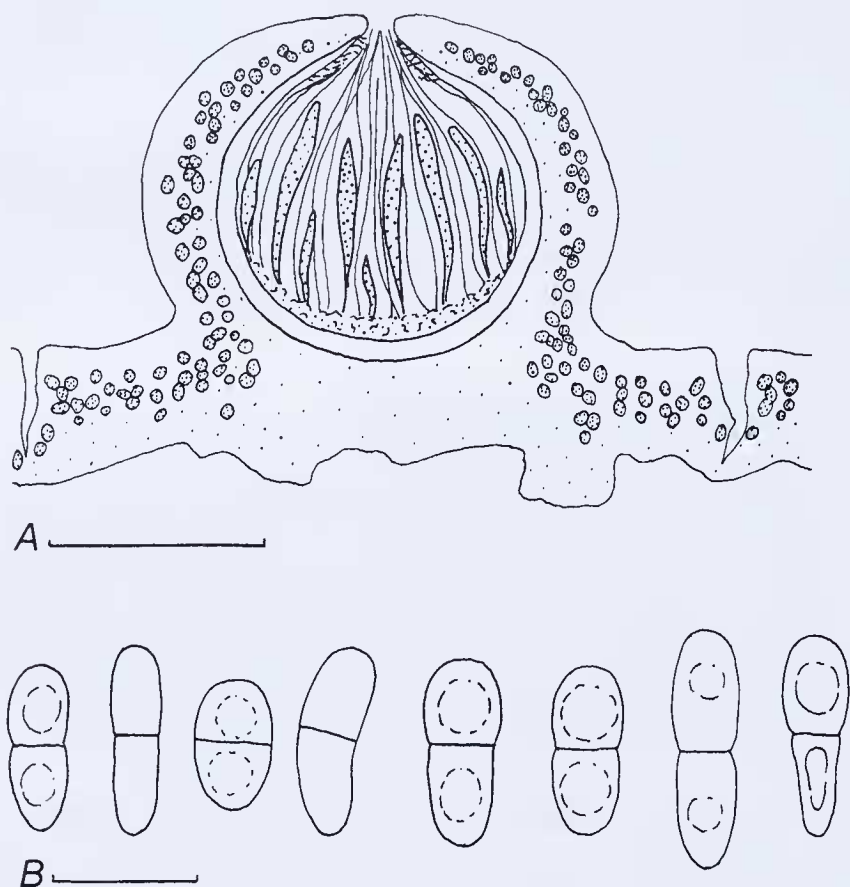


Fig. 1. *Thelopsis isiaca* var. *australis*. A — vertical section of perithecial verruca; scale 0.2 mm. B — ascospores; scale 10 μm .

DISCUSSION:

Thelopsis isiaca var. *australis* shares the salient features of var. *isiaca*, namely the thalline verrucae, immersed perithecia and 1-septate ascospores. It differs, however, in its siliceous substratum, its smooth areolate thallus, smaller asci ($180\text{--}240 \times 10\text{--}20 \mu\text{m}$ in the typus of var. *isiaca*) and in its smaller verrucae and perithecia.

According to Vězda (1968), *T. isiaca* possesses 0.4–0.5 mm diam. perithecia in verrucae that measure 0.6–1 mm. However, the holotype (H-NYL. 1436) and a second specimen from the type locality (Arnold, Lich. exs. 1635, in H-NYL.) together have mature verrucae measuring (0.46–)0.57(–0.74) mm (30 individuals). Moreover, the sole New World specimen of *T. isiaca*, first described as *T. subporinella* Nyl. ex Hasse, possesses verrucae of (0.45–)0.53(–0.62) mm (10 individuals). Thus, whereas recent gatherings have featured larger verrucae, those of the *typi* of *T. isiaca* and its synonym, though larger than those of var. *australis* are not discontinuous with them. Because of this, the new taxon is assigned varietal rather than a higher status.

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